

## CLAIMS:

1. Separator having
  - a) a rotatable drum (2) with a vertical axis of rotation (M), in which preferably a disk stack (7) is arranged,
  - b) a piston slide (13) for opening and closing solids discharge openings (14) in the drum (2),
  - c) in the open condition of the piston slide (13), a radial gap (19) being formed between the drum, particularly between a drum top part (15), and the piston slide (13), characterized in that
  - d) at least one annular chamber (22) is constructed on both sides of the gap (19) radially in front of the solids discharge openings in the outer circumference area of the piston slide (13) and the drum, particularly in the top part (15) of the drum.
2. Separator according to Claim 1 or according to the preamble of Claim 1, characterized in that, in the average open condition, the exit height of the gap (19) at the solids discharge openings (14) is greater than the height of the solids discharge openings.
3. Separator according to Claim 1 or 2, characterized in that two radially successive annular chambers (22, 23) are constructed in the piston slide (13) and in the top part (15) of the drum.
4. Separator according to Claim 1 or 2, characterized in that the two radially successive annular chambers (22, 23) are mutually connected by a bottleneck.
5. Separator according to Claim 3 or 4, characterized in that the two annular chambers (23) are symmetrically constructed with respect to the contact surface of the piston slide (13) on the top part (15) of the drum in the closed condition.

6. Separator according to Claim 3 or 4 or 5, characterized in that the radially interior annular chamber (22) of the annular chambers is constructed as a fanning-out chamber for an exiting stream of solids.

7. Separator according to one of the preceding claims, characterized in that the radially exterior annular chamber (23) of the annular chambers is constructed as a swirl chamber for the exiting stream of solids.

8. Separator according to one of the preceding claims, characterized in that the radially exterior annular chamber (23) of the two annular chambers has a greater axial dimension (height H3) than the radially interior annular chamber (22) of the two annular chambers (height H1).

9. Separator according to Claim 6, 7 or 8, characterized in that the exterior annular chamber (23) of the two annular chambers has a greater axial dimension (height H3) than the solids discharge openings (14) (height H2).

10. Separator according to one of the preceding claims, characterized in that, in the open condition of the piston slide (13), the radially exterior annular chamber (23) of the two annular chambers has a dimension (height H3) which is more than twice as large as the solids discharge openings (height H2).

11. Separator according to one of the preceding claims, characterized in that the interior annular chamber (22) of the two annular chambers starts radially outside a groove (18) for a sealing device (17) in the top part of the drum or at the corresponding point of the piston slide (13).

12. Separator according to one of the preceding claims, characterized in that the radially interior annular chamber (22) of the two annular chambers starts radially outside the sealing groove (18) in the top part (15) of the drum or at the corresponding point of the piston slide (13) at a sharp edge (24) at a radius ( $r_1$ ), widens to a radius  $r_2$  to a maximal axial dimension  $H_1$  and then narrows again to an axial dimension  $H_4$  at a radial point  $r_3$  so that, in the open condition of the piston slide (14), a nozzle-type fanning-out chamber is created.

13. Separator according to one of the preceding claims, characterized in that the nozzle-type fanning-out chamber has a radial dimension  $r_3 - r_1$ , which, in the average open condition, is more than twice as large as its maximal axial dimension  $H_1$  in the open condition of the piston slide (14).

14. Separator according to one of the preceding claims, characterized in that the maximal axial dimension ( $H_1$ ) in the average open condition is smaller, preferably more than 50% smaller, than the axial dimension ( $H_2$ ) of the solids discharge openings.

15. Separator according to one of the preceding claims, characterized in that the radially exterior annular chamber (23) has a rounded cross-section, so that liquid is swirled therein.